

### Telex Magnetic Tape Drive Test

The period of the test started at 1100 hours on 9 September and ended at 0700 hours on 7 October 1969. It must be noted that these tests were run in a computer center where there is only one (1) scheduled operating shift. It should also be noted that test programs one (1) through four (4) were written to run under IBM's operating system (Version 17, MVT), and the computer center where these tests were conducted does not run IBM's operating system during the entire operating shift. Test program five (5) is called a stand alone program, supplied by IBM. The program is called DASDI/DUMP-RESTORE.

I. Tests Conducted on Telex Drives.

A. Reading & Writing Speed

II. Physical Dimensions

A. Telex  
B. IBM

III. Price

A. Telex  
B. IBM

IV. Advantages

A. Telex  
B. IBM

V. Disadvantages

A. Telex  
B. IBM

VI. Problems Encountered While Testing Telex Drives

VII. Time Used on Telex Drives

VIII. Maintenance Calls

- I. There were five (5) tests conducted on the Telex tape drives to test their efficiency and performance.

#### TELEX TEST 1

Function: TAPE TO TAPE FORWARD

Description: This program reads data from an input tape and writes the data to an output tape one record at a time. Program will end normally at end of data.

#### TELEX TEST 2

Function: READ, INCREMENT BY ONE, REREAD

Description: Sets a counter to 1 then reads and writes the number of times specified in counter. Counter is incremented by one each time through the loop and then the read begins with record one. Program will ask for continuation or end at end of data.

#### TELEX TEST 3

Function; TAPE TO TAPE FORWARD & REVERSE

Description: This program reads one record and writes one record at a time. Processing continues to end of data at which time the tapes are logically switched as to input and output attributes. This will continue until canceled by operator.

#### TELEX TEST 4

Function: TAPE TO TAPE BACKWARDS

Description: This program reads the input tape backwards one record at a time and writes it on output

TELEX TEST 5

Function: TAPE TO DRUM

Description: This program reads data from an input tape and writes the data to the 2303 magnetic drum. Program will end normally at end of data.

- A. The reading and writing on the Telex drives did not noticeably seem to be any faster or slower than the IBM drives.

## II. Physical Dimensions

### \*A. Telex

1. Height - 70" (71" including hinge on top of rear door)
2. Width -  $31\frac{1}{4}$ "
3. Depth -  $33\frac{1}{2}$ "
4. Weight - 750 lbs. (maximum)

### \*\*B. IBM

1. Height -  $66\frac{1}{2}$ " 67
2. Width -  $59\frac{3}{4}$ " 284
3. Depth -  $29\frac{3}{4}$ " 64
4. Weight - 1600 lbs. 65

\* The Telex magnetic tape drives are individual units; one (1) magnetic tape drive equals one (1) unit. Unit is 4832 series, nine channel.

\*\*The IBM magnetic tape drives have two (2) drives per one (1) unit. Unit is 2402 series, nine channel.

NOTE: The explanations above (\* and \*\*) account for the reason why IBM drives are twice as wide and heavy as the Telex drives.

STATINTL

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## VI. Problems Encountered after Telex Drives were Installed

**Problem 1** - This problem was never pin pointed as being a Telex tape drive problem, but it only happened after the drives were installed.

383 and 384 are the Telex drives; when the operating system asked for unit 383 to be mounted, the operator made the unit READY but nothing happened. The operator then questioned the system as to what it was waiting for, and the system responded with - UNIT 383. This meant it was waiting for 383 to become READY, which it already was. As was stated earlier, no definite solution was made as to the problem being a tape unit problem.

*changed line  
383?*

**Problem 2** - The main problem encountered with the drives was that drive 383, while reading backwards, would hang up in the SELECT status. Not only did it hang up the tape drive, it also caused that channel to hang up and eventually the operating system. Several days were used to try and correct this error. Transistor cards were swapped between 383 and 384 to see which card was bad. After two and a half days of testing, (not all day) the bad card was found and replaced. Computer time had to be given to the Telex engineer during certain periods of these 2½ days so he could check out the units. Also the units were taken offline, so that the Telex engineer could replace certain parts. This meant that we only could use 3 of our 5 tape drives, and were not able to run our tests as much.

### Problem 2 in Section VI Breakdown

On 24 September problem 2 was encountered and the call was made to the Telex engineer at 1230. The engineer did not come until 1600 because he couldn't get time to work on the unit until 1600.

On 25 September problem 2 was encountered at 0710. The Telex engineer called the computer center a few minutes later and was told the problem had returned. At 0845 engineers arrived and at 0908 units 383 and 384 were taken offline (disconnected from channel). At 1617 units were given back to us so we could resume our tests to see if unit would fail.

On 26 September problem 2 was encountered at 1130. Engineer was already at computer center and checked units. Cards were swapped between 383 and 384 to try and determine if there was a bad card.

On 29 September at 0715 problem 2 returned. Units 383 and 384 were taken offline from 0815 to 0900. After several components in 383 had been changed and switching transistor cards from 383 and 384, a bad card was found and replaced.



360 Time Used by Telex Engineer (Not Meter Time)

|              |             |                 |
|--------------|-------------|-----------------|
| September 24 | 1642 - 1705 | 23 minutes      |
| September 25 | 1150 - 1205 | 15 minutes      |
|              | 1535 - 1617 | 42 minutes      |
| September 26 | 1130 - 1152 | 22 minutes      |
|              | 1549 - 1600 | 11 minutes      |
| September 29 | 0835 - 0900 | 25 minutes      |
|              | 0950 - 1155 | 116 minutes     |
|              |             | 4 hrs. 14 mins. |

During these periods of time the Telex engineer was either running his diagnostics or running Telex Test 4 to get the unit to fail. This time was all used to correct problem 2 in section VI. The units hanging up in SELECT were stated as being a known problem by Telex, but it is usually a stuck valve. In problem 2 it turned out to be a bad transistor card.

## VII. Time Used on Telex Drives

Process time is the time that the tape drive was actually reading or writing tape.

Elapse time is the time the tape drive was powered up until the time it was powered down.

### Unit 383 - 3023 GA

|                     |   |                       |
|---------------------|---|-----------------------|
| September 9 at 1100 | Process Start<br>00408                  | Elapse Start<br>00544 |
| October 7 at 0700   | Process Stop<br>00712                   | Elapse Stop<br>03194  |
| Total Time          | Process - 30.4 Hrs. Elapse - 265.0 Hrs. |                       |

### Unit 384 - 3024 GA

|                     |   |                       |
|---------------------|---|-----------------------|
| September 9 at 1100 | Process Start<br>00508                  | Elapse Start<br>00794 |
| October 7 at 0700   | Process Stop<br>00742                   | Elapse Stop<br>03450  |
| Total Time          | Process - 23.4 Hrs. Elapse - 265.6 Hrs. |                       |

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The time for the tests is based on 20 nine-hour working days. A total of 180 working hours. Of this 180 hours, 16 hours were used by IBM for maintenance of the computing system. Another 72 hours were used to load, run, and unload SDC's (System Development Corporation) Adept System. This system has nothing to do with IBM's operating system; therefore, we were unable to run our tape tests during these hours. This left a total of 92 hours which could possibly be used to run the tape tests.

Time for tests

20 days  
9 hours each day  
180 total hours

180 total hours  
16 IBM maintenance  
72 SDC Adept System  
92 hours possible for tests

The longest running by one of the Telex Test programs was Telex Test 2. This program ran continuously for three (3) hours before test had to be canceled by operator.

#### VIII. Maintenance Calls

Whenever a call was placed to the Telex Corporation, an engineer responded within half an hour. They were always willing to help us with any problems that we might have concerning drives. I felt that we could depend upon their service whenever it was needed. This does not mean that we will get the same type of service if we rent the units.

Additional Information

During a conversation with Mr. Charlie Wagner of the Telex Corporation, I was told by Mr. Wagner that Telex tape drives with automatic windows will be available at the end of the year (1969).